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EXAMINER
NGUYEN, TANH Q

ART UNIT	PAPER NUMBER
2182	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)
	10/707,218	HSUAN, JOHN
	Examiner	Art Unit
	Tanh Q. Nguyen	2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 June 2007.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 and 14-20 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-12 and 14-20 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 27 November 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-11; 12, 14-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the limitation "an optical sensor array comprising a plurality of optical sensors for generating a captured image and providing image information, wherein each optical sensor in the optical sensor array provides the image information for a first color" in lines 4-7.

There is no support in the specification for "the optical sensor array generating a captured image". Instead, the specification supports "an image being captured by the optical sensor array and the optical sensor array providing image information (information about the captured image) to the processor" [see last 5 lines of [0019]]. Note that capturing an image does not mean generating a capture image.

There is no support in the specification for "the optical sensor array comprising a

plurality of optical sensors...wherein each optical sensor in the optical sensor array provides the image information for a first color". Instead, the specification supports "the optical sensor array comprising a plurality of optical sensors...wherein each optical sensor in the optical sensor array provides the image information for only one color selected from a group of at least three component colors" [see FIGs. 4-6].

Claim 1 recites the limitation "a processor for receiving the captured image and the image information from the optical sensor array" in lines 10-11. Claim 12 recites the same limitation in lines 11-12. There is no support in the specification for such limitation. Instead, the specification supports "the processor for receiving the image information from the optical sensor array" [see first 3 lines of [0020]], and suggests that the image information is information about the captured image.

Claim 1 recites the limitation "the processor generates the processed data...according to the captured image" in lines 11-13, the limitation "the processor generates the processed data according to the captured image" in lines 14-15, and in lines 16-17. Claim 12 recites similar limitations in lines 12-18. There is no support in the specification for such limitations. Instead, the specification appears to suggest "the processor generates the processed data according to the information about the captured image" [see first 3 lines of [0020]].

4. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, because the specification, **while being enabling for "the optical sensor array comprising a plurality of optical sensors...wherein each optical sensor in the optical sensor array provides the image information for only one color selected from a group of at least three component**

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colors" and for "optical sensors providing information for a second color and a third color are deactivated when the multifunction optical device is in the mouse mode", **does not reasonably provide enablement for "the optical sensor array comprising a plurality of optical sensors...wherein each optical sensor in the optical sensor array provides the image information for a first color"** and for "optical sensors providing information for a second color and a third color are deactivated when the multifunction optical device is in the mouse mode". The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Note that claim 1 requires each optical sensor to provide information for a first color, hence there is no optical sensor providing image information for a second color and a third color that can be deactivated. Furthermore, the scope of claims 1-3 appears to be inconsistent with FIGs. 4-6.

5. Claims 1-11; 12, 14-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the processor generates the processed data by calculating a location address...if the multifunctional optical device is in the mouse mode" in lines 11-14. Claim 12 recites the same limitation in lines 12-15. It appears that the processed data is generated from a calculation of a location address based on the image information when the multifunctional optical device is in the mouse mode. The claims, as recited, do not clearly indicate how the processed data is related to calculating a location address [see last 6 lines of [0025]].

6. The rejections that follow are based on the examiner's best interpretation of the claims..

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-3, 5-11; 12, 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus et al. (US 6,906,699).

9. As per claim 12, Fåhraeus teaches a multifunctional optical device [FIGs. 1-2], comprising:

a switch [27, FIGs 1-2] for switching the multifunctional optical device between a mouse mode, a camera mode, and a scanner mode [col. 6, lines 44-47];

an optical sensor array [8, FIGs. 1-2] comprising a plurality of optical sensors for capturing an image and providing information about the captured image [col. 6, lines 3-6; col. 6, lines 22-25; col. 10, lines 39-42];

a processor [20, FIG. 2] for receiving the information about the captured image from the optical sensor array and generating processed data [col. 6, line 64-col. 7, line 8], wherein the processor generates the processed data by calculating a location address according to the information about the captured image if the multifunctional

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optical device is in the mouse mode [302-303, FIG. 3; col. 7, line 18-col. 8, line 18], the processor generates the processed data according to the information about the captured image if the multifunctional optical device is in the camera mode [FIG. 9; col. 10, lines 12-50], and the processor generates the processed data according to the information about the captured image by combining information of a set of linear images if the multifunctional optical device is in the scanner mode [703, FIG. 7; FIGs. 8a-8c; col. 9, line 11-col. 10, line 11];

a memory [22, 23 - FIG. 2] for storing device settings of the multifunctional optical device and for temporarily storing information about images captured by the optical sensor array [col. 4, lines 49-51; col. 6, lines 32-36]; and

an interface port [26, FIGs. 1-2] for interfacing the multifunctional optical device with a host computer and for outputting the processed data from the processor to the host computer [col. 6, lines 43-44].

Fåhraeus further teaches the optical sensor array being a CCD that is commercially available [col. 6, lines 22-25] and images being recorded as a plurality of pixels having colour values [col. 10, lines 40-42], but does not specifically teach each optical sensor in the CCD providing information for only one color selected from a group of at least three component colors.

Since the CCD is commercially available, and since it is known for each optical sensor in a commercially available CCD to provide information for only one color selected from a group of three component colors (RGB colors) when capturing an image, it would have been obvious to one of ordinary skill in the art at the time the

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invention was made to use such CCD in the multifunctional optical device to capture an image.

Fåhraeus does not teach only optical sensors providing image information for a first color being activated when the multifunction optical device is in the mouse mode.

Since a mouse mode only requires location information, and since no more than one color is needed for location information, it would have been obvious to one of ordinary skill in the art at the time the invention was made to activate only the optical sensors providing image information for a given color in order to reduce the amount of data generated for location information. Note also that since only optical sensors for a given color (the first color) are used to capture location information, optical sensors providing image information for a second color and a third color are not used, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to deactivate the blue and green optical sensors to save power because it was known in the art to deactivate components of a device that are not necessary for a given operation to save power.

Alternatively, it was known in the art for an optical mouse to use a red light and red optical sensors to capture location information, hence making it obvious to one skilled in the art for the multifunctional optical device to use a red light and only red optical sensors to capture location information. Note also that since only red optical sensors are used to capture location information, optical sensors providing image information for a second color and a third color are not used, and it would have been obvious to one of ordinary skill in the art at the time the invention was made to

deactivate the blue and green optical sensors to save power because it was known in the art to deactivate components of a device that are not necessary for a given operation to save power.

10. As per claims 15-18, Fåhraeus teaches a first light source [6, FIGs. 1-2] for illuminating a surface on which the multifunctional optical device is placed with light of a first color when the multifunctional optical device is in the mouse mode [col. 6, lines 7-8; col. 7, lines 25-29];

a second light source [28, FIGs. 1-2] for illuminating a surface on which the multifunctional optical device is placed with light of a second color when the multifunctional optical device is in the scanner mode [col. 9, lines 23-24], wherein the second color is different from the first color [because Fåhraeus does not require the second color (tracing LED) to be the same as the first color (at 50 Hz), Fåhraeus does not preclude the second color being different from the first color];

the processor being a digital signal processor [the processor processing digital signal - see FIGs. 3-9]; and

the optical sensor array being a charge coupled device [col. 6, lines 22-25].

11. As per claim 19, Fåhraeus does not teach the optical sensor array being a CMOS optical sensor array. Since it was known in the art at the time the invention was made to use a CMOS optical sensor array as an alternative to a CCD array in order to capture data in multifunctional optical device, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a CMOS optical sensor array instead of a CCD array in the multifunctional optical device - in order to

capture data. In addition, applicant discloses using a CCD or an CMOS optical sensor array as the optical sensor array [last 3 lines of [0019]], hence supporting a multifunctional optical device with a CMOS optical sensor array being an obvious variant of a multifunctional optical device with a CCD, and also indicating that the use of a CMOS optical sensor array instead of a CCD being not significant.

12. As per claim 20, Fåhraeus teaches the interface port interfacing with the host computer through a Bluetooth communication protocol [col. 4, lines 52-56].

13. As per claims 1-3, 5-11, see the rejections of claims 12, 15-20 above.

14. Claims 1-3, 5-11; 12, 15-20 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Nakakuki (US 7,113,206).

As indicated in the rejection of claim 12 above, Fåhraeus teaches the optical sensor array being a CCD that is commercially available [col. 6, lines 22-25] and images being recorded as a plurality of pixels having colour values [col. 10, lines 40-42], but does not specifically teach each optical sensor in the CCD providing information for only one color selected from a group of at least three component colors.

Nakakuki teaches obtaining a color image through a CCD by arraying a plurality of colors of color filters in a mosaic pattern such as a Bayer array [FIG. 1] which comprises filters of three primary colors (RGB) allowing each optical sensor of the CCD to provide image information for only one color selected from the RGB colors [col. 1, lines 11-30].

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to use a Bayer array, as is taught by Nakakuki, in order to allow each optical sensor in the CCD to provide image information for only one color selected from three primary colors.

15. Claims 4, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Kitamura et al. (US 5,140,148). Claim 14 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Nakakuki, and further in view of Kitamura et al..

Fåhraeus/Nakakuki do not teach the optical sensor array being logically divided into a plurality of blocks of optical sensors, and when the multifunctional optical device is in the scanner mode, successive blocks of optical sensors are sequentially activated to capture the set of linear images.

Kitamura teaches an optical sensor array [B1-B40, FIG. 1] of a scanner [col. 1, lines 13-15] being logically divided into a plurality of blocks of optical sensors [B1-B40, FIG. 1; FIG. 2; col. 2, lines 36-45], and successive blocks of optical sensors being sequentially activated [FIGs. 4A-4B; col. 2, lines 3-8] to reduce noise while capturing a set of linear images [col. 3, lines 30-34].

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical sensor array to be logically divided into a plurality of blocks of optical sensors when the multifunctional optical device is in the scanner mode, and for successive blocks of optical sensors to be sequentially activated, as is taught by Kitamura, in order to reduce noise while capturing the set of linear images - hence producing better images.

16. Claims 4, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Ackley et al. (US 6,375,075). Claim 14 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Fåhraeus in view of Nakakuki, and further in view of Ackley et al..

Fåhraeus/Nakakuki do not teach the optical sensor array being logically divided into a plurality of blocks of optical sensors, and when the multifunctional optical device is in the scanner mode, successive blocks of optical sensors are sequentially activated to capture the set of linear images.

Ackley teaches an optical sensor array [44, FIG. 2; col. 3, lines 17-19] of a scanner [10, FIG. 2; col. 3, lines 13-15] being logically divided into a plurality of blocks of optical sensors [62, 64, 66, 68 - FIG. 2; col. 3, lines 58-60], and successive blocks of optical sensors being activated to capture a number of color separated images of a color symbol, with each image being formed on a block of optical sensors [col. 4, lines 17-19] in order to better decode (i.e. scan) the color coded symbol [col. 1, lines 58-62]. Ackley would have suggested to one skilled in the art that the successive blocks of optical sensors are activated sequentially when successive (or sequential) color coded symbols are to be captured.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the optical sensor array to be logically divided into a plurality of blocks of optical sensors when the multifunctional optical device is in the scanner mode, and for successive blocks of optical sensors to be sequentially activated, as is suggested by Ackley, in order to better scan a plurality of successive color coded

symbols.

Response to Arguments

17. Applicant's arguments with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection and/or not persuasive.

Applicant argues with respect to claims 1 and 12 that Fåhraeus does not teach, suggest, or provide motivation for only activating optical sensors that provide image information for the first color when the multifunction device is in the mouse mode". The argument is not persuasive because the examiner does not rely on Fåhraeus such limitation. The examiner relies instead on Nakakuki and/or well-known statements to support such limitation. Furthermore, since applicant fails to traverse the well-known statements, the well-known statements are taken to be admitted prior art - see Chevenard, 139 F.2d at 713, 60 USPQ at 241.

Applicant argues with respect to claims 3 and 16 that Fåhraeus does not teach or suggest the limitations of the respective claims. The argument is moot in view of the new ground of rejections.

Applicant further argues that the dependent claims are allowable because the independent claims are allowable. The argument is moot in view of the new ground of rejections.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanh Q. Nguyen whose telephone number is 571-272-4154. The examiner can normally be reached on M-F 9:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on 571-272-4147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TANH Q NGUYEN
PRIMARY EXAMINER
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August 29, 2007

TQN
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